IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/750,597	§	Examiner: Brown, Sheree N.
Filed: December 31, 2003	§	Group/Art Unit: 2163
Inventors:	§	Atty. Dkt. No: 5760-14900
John Colgrove	§	
Par Botes	§	
Michael Timpanaro-Perrotta	§	
Charles Silvers	§	
Peter Vajgel	§	
Title: Multi-Class Storage	§	
Mechanism	§	
	§	
	§	
	§	
	§	

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. The review is requested for the reasons stated below.

Claims 1-41 remain pending in the application. Reconsideration of the present case is earnestly requested in light of the following remarks. Please note that for brevity, only the primary arguments directed to the independent claims are presented, and that additional arguments, e.g., directed to the subject matter of the dependent claims, will be presented if and when the case proceeds to Appeal.

The Examiner rejected claims 1, 2, 6-12, 14-18, 22-28, 30 and 34-40 under 35 U.S.C. § 102(e) as being anticipated by Yakir et al. (U.S. Publication 2004/0049513) (hereinafter "Yakir"). Applicants respectfully traverse this rejection for at least the reasons presented below.

Regarding claim 1, Yakir does not disclose file system software comprising a multi-class storage mechanism, wherein the multi-class storage mechanism is configured to monitor access of data stored in a multi-class file system comprising *a hierarchy of storage classes* to generate access information for the data, wherein each storage class comprises one or more storage devices assigned to the storage class *according to one or more characteristics of the storage class*. Yakir teaches a multi-disk and multi-volume system, but does not disclose a hierarchy of storage classes where each storage class comprises storage devices assigned to the storage class *according to characteristics of*

the storage class. The Examiner cites paragraphs [0020], [0070], [0090] and [0092] of Yakir, asserting that Yakir's "storage units 102 may be organized into one or more logical storage units/devices 104" and that a "logical storage unit may reside on non-continuous physical partitions." However, Yakir merely discloses multiple storage devices and multiple logical storage units. The fact that Yakir's system includes multiple storage devices/units does not disclose the specific limitations of a multi-class file system including *a hierarchy of storage classes* and storage devices assigned to a storage class *according to characteristics of the storage class*.

In the Response to Arguments, the Examiner argues that Yakir's servers (S1, S2 and S3) are equivalent to the storage classes of Applicants' claims. The Examiner's interpretation is incorrect. Yakir does not teach that the servers of his system represent a hierarchy of storage classes in which each storage class includes storage devices assigned to the storage class, according to characteristics of the storage class. Additionally, Yakir teaches the use of logical storage units, which the Examiner equates to the storage devices of Applicants' claims. However, Yakir specifically teaches that a "single logical storage unit may span storage space provided by multiple physical storage units" and that a "single physical storage unit may be divided into several separately identifiable logical storage units" (paragraph [0020]). Yakir also clearly states that a physical storage unit, as opposed to a logical storage unit, "is intended to refer to any physical device, system, etc. that is capable of storing information or data" (paragraph [0019]). Thus, Yakir's logical storage units are not storage devices, as the Examiner contends.

The Examiner also refers to Yakir's mention of Hierarchical Storage Management (HSM) applications, citing paragraphs [0004] and [0046]. However, Applicants' argument is not that Yakir never mentions HSM applications, but that Yakir does not disclose *a file system having* a hierarchy of storage classes where *each storage class comprises storage devices* assigned to the storage class *according to characteristics of the storage class*, as argued above. Paragraphs [0004] and [0046] describe stub files, which Yakir describes as a physical file that represents a migrated file. Neither of the cited paragraphs ([0004] and [0046]) supports the Examiner contention that Yakir discloses a hierarchy of storage classes where *each storage class comprises storage devices* assigned to the storage class *according to characteristics of the storage class*. The fact that Yakir's system includes a stub file that "stores information that enables a migrated file to be recalled" does not in any way imply the use of a hierarchy of storage classes where *each storage class comprises storage devices* assigned to the storage class *according to characteristics of the storage class*, as recited in Applicants' claim.

The Examiner also asserts that each of Yakir's storage units "is generally identifiable by a unique identifier that may be specified by the administrator." However, providing unique identifiers for storage units does not disclose assigning storage units to storage classes *according to one or more characteristics of the storage class*. The unique identifiers to which the Examiner refers merely allow each storage unit to be uniquely addressed. Yakir does not mention anything about the unique identifiers being characteristics of any storage class. Thus, Yakir fails to disclose wherein each storage class comprises one or more storage devices assigned to the storage class according to one or more characteristics of the storage class.

Furthermore, the Examiner argues in the Response to Arguments that Yakir's use of a unique identifier for each logical storage unit "discloses characteristics of the storage class", citing paragraph [0020]. The Examiner's interpretation is incorrect. Nowhere does Yakir describe a logical storage

unit's identifier as representing any sort of characteristic of a storage class. The mere fact that a logical storage unit may be assigned a unique identifier by an administrator does not imply any sort of characteristic of the logical storage unit, let alone a characteristic *of a storage class*. Additionally, the Examiner's has already argued that Yakir's servers (S1, S2, and S3) are equivalent to storage classes and also argued (erroneously) that Yakir's logical storage units are equivalent to storage devices. Thus, the Examiner is contradicting herself. On one hand the Examiner argues that Yakir's logical storage units are storage devices (and that the servers are storage classes) and on the other hand the Examiner argues that a logical storage unit's unique identifier is a characteristic of a storage class. The Examiner cannot have it both ways. The unique identifier for a logical storage unit, which the Examiner considers a storage device, cannot also be a characteristic of a storage class, which the Examiner considers to be equivalent to Yakir's servers.

Further regarding claim 1, Yakir also fails to disclose a multi-class storage mechanism configured to apply the access information to a set of policies for the multi-class file system. The Examiner cites FIG. 1, item 114 and paragraph [0023] of Yakir. However, item 114 of FIG. 1 and paragraph [0023] merely disclose that Yakir system includes "information 114 related to storage policies and rules configured for the storage environment" (Yakir, paragraph [0023]). Yakir does not, however, teach anything regarding applying access information (generated from the monitoring of data stored in a multi-class file system) to a set of policies for the multi-class file system. Yakir does not teach anything regarding applying any access information to the storage policies and rules of information 114. Nor does Yakir describe applying access information to any other set of policies. The mere existence of storage policies does not inherently include or imply applying access information to storage policies. Without some specific disclosure by Yakir regarding applying access information to a set of policies, Yakir cannot be said to anticipate a multi-class storage mechanism configured to apply access information to a set of policies for a multi-class file system.

In the response to arguments, the Examiner cites paragraphs [0023] and [0046] and argues that in Yakir's system information used to find or locate migrated data may be stored in the same database as "information related to storage policies and rules configured for the storage environment". However, the sentence cited by the Examiner is the only reference by Yakir to such polices or rules. Thus, the Examiner is arguing that since Yakir mentions that information used to locate migrated data may be stored together with (in the same database as) "information related to storage policies", Yakir somehow discloses the specific limitation of applying access information to a set of policies for a multi-class file system, as recited in Applicants' claim. The Examiner's position clearly goes beyond the actual teachings of Yakir. A single sentence stating that location information and "information related to policies" may be stored in the same database does not, in any way, *disclose* applying access information to a set of policies. Storing different types of information together does not imply that one set of information is *applied* to the other.

Additionally, Yakir fails to disclose a multi-class storage mechanism configured to migrate a portion of the data to different storage classes in the hierarchy of storage classes in response to the application of access information to the set of policies for the multi-class file system. The Examiner cites the same portions of Yakir (FIG. 1, item 114 and paragraphs [0020], [0023], [0070], [0090] and [0092]). The Examiner refers to Yakir's teachings regarding migrating a stub file from one storage unit to another, but fails to cite any portion of Yakir that discloses migrating a stub file **in response to the application of access information to a set of policies.** Instead, Yakir teaches that a

stub file is migrated in response to an originating server receiving a signal to move a stub file and that "[t]he signal may be received from a user, an application or program, or from other like source" (Yakir, paragraph [0063]). Thus, Yakir discloses migrating a stub file in response to a signal from a user, application or a similar source. A signal from a user or an application cannot be considered an application of access information to a set of policies. Yakir clearly does not describe migrating data in response to the application of access information to a set of policies.

In the Response to Arguments, the Examiner cites paragraph [0011] of Yakir referring to Yakir's teachings that "information (such as information 11 related to policies) can be used to determine the location of the migrated data" (parenthesis by Examiner). However, the Examiner's argument fails to support the Examiner's position. Firstly, the cited paragraph does not support the Examiner's contention that "information related to polices" can be used to determine the location of migrated data. Instead, paragraph [0011] states that a stub file stores information that can be used to determine the location of migrated data. Secondly, the fact that information (whether related to policies or not) may be used to locate *migrated* data, i.e. data that has already be migrated does not disclose migrating data to different storage classes *in response to* applying access information to a set of policies. The Examiner's argument that after being migrated, information related to policies may be used to locate the migrated data says nothing about whether the data was migrated in response to anything.

Anticipation requires the presence in a single prior art reference disclosure of <u>each and every limitation</u> of the claimed invention, <u>arranged as in the claim</u>. M.P.E.P 2131; *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). The **identical** invention must be shown <u>in as complete detail</u> as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). As discussed above, Yakir fails to disclose a multi-class storage mechanism configured to monitor access of data stored in a multi-class file system comprising <u>a hierarchy of storage classes</u> to generate access information for the data, wherein <u>each storage class comprises one or more storage devices assigned to the storage class according to one or more characteristics of the storage class</u>. Yakir further fails to disclose that the multi-class storage mechanism is configured to <u>apply the access information</u> to a set of policies for the multi-class file system and to migrate a portion of the data to different storage classes in the hierarchy of storage classes <u>in response to the application of access information to the set of policies</u> for the multi-class file system. Therefore, Yakir cannot be said to anticipate claim 1. Similar remarks apply to claims 14, 16 and 30.

Regarding claim 15, Yakir fails to disclose a system including means for means for implementing a multi-class file system including <u>a hierarchy of storage classes</u> on a plurality of storage devices, where each storage class includes one or more of the storage devices <u>assigned to the storage class according to one or more **characteristics of the storage class**</u>. Please refer to the remarks above regarding claim 1, for a detailed discussion of Yakir's failure to disclose a multi-class file system including <u>a hierarchy of storage classes</u> on a plurality of storage devices, where each storage class includes one or more of the storage devices <u>assigned to the storage class according to one or more</u> **characteristics of the storage class**.

Yakir further fails to disclose software means for assigning a migrating data <u>to different storage classes in the hierarchy of storage classes</u> **according to a set of policies** for the multi-class file system. The Examiner does not cite any portion of Yakir that describes migrating data to different storage classes in a hierarchy of storage classes. Yakir only mentions that data may be migrated from an

original storage location on an original volume to a repository storage location on a repository volume and that a stub file may also be migrated from an original storage location to another storage location. However, Yakir does not mention migrating data to *different storage classes in a hierarchy of storage classes*. In fact, Yakir makes not mention of different storage classes at all. The Examiner equates the mere fact that Yakir's system includes multiple physical storage devices and multiple logical storage units as including a hierarchy of storage classes. However, merely providing multiple physical storage devices and multiple logical storage units does not disclose anything regarding *different storage classes* or about a *hierarchy* of storage classes.

Nor does having multiple physical/ logical storage units disclose anything about migrating data according to a set of policies for a multi-class file system. Yakir merely describes the existence of storage policies and rules (Yakir, paragraph [0023]), but fails to disclose migrating data to different storage classes according to a set of policies. As noted above regarding claim 1, Yakir described migrating a stub file in response to receiving a signal from a user, application, program, or other like sources. Nowhere does Yakir mention anything regarding migrating data according to a set of policies.
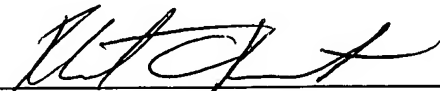
The Examiner's rejection of many of the dependent claims is additionally erroneous. For example, the cited art is clearly insufficient to support the rejection of claims 2, 3, 7, 11, 18, 19, 23, 27, 31, 35 and 39 as discussed in detail in Applicants' previous response on pp. 8 - 13.

In light of the foregoing remarks, Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested. If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above referenced application from becoming abandoned, Applicants hereby petition for such an extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel PC Deposit Account No. 501505/5760-14900/RCK.

Also enclosed herewith are the following items:

☒ Return Receipt Postcard
☒ Notice of Appeal

Respectfully submitted,

Robert C. Kowert
Reg. No. 39,255
ATTORNEY FOR APPLICANT(S)

Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
Phone: (512) 853-8850

Date: ___August 14, 2006___